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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,588	12/03/2003	Renato Conta	000280.00034	3437
22907	7590	05/18/2005	EXAMINER	
BANNER & WITCOFF 1001 G STREET N W SUITE 1100 WASHINGTON, DC 20001			STEPHENS, JUANITA DIONNE	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/725,588	Applicant(s) CONTA ET AL	
	Examiner Juanita D. Stephens	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed 2/7/2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-13, 15, 16 and 19-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-24 is/are allowed.
- 6) ☒ Claim(s) 3-13, 15, 16, 25 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 10/169,114.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-2 and 14 canceled in Amendment filed 2/7/2005.

Drawings

1. The drawings were received on 2/7/2005. These drawings are approved.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 25-26, 3-9, 11-13, 15 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Courian et al. (US 6,286,941 B1).

Courian et al. discloses a thermal ink jet printhead (42)(Fig. 2) comprising: **1)** a reservoir (38) suitable for containing ink, **2)** a die (substrate 60, **3)** a slot (hole 61) etched in said die (col 10, lns 18-36; Fig. 17) and in fluid communication with said reservoir, **4)** a plurality of ejectors, each of which in turn comprises a nozzle (orifice 84) and a chamber (chamber includes 74, 80 and 78) having a perimeter and a bottom (portion in which resistor 72 is located (Fig. 7), wherein said chamber is bounded on the perimeter by continuous wall (walls forming 74, 80 and 78) (as seen in Fig. 8), **5)** wherein each of said chambers is fluidly connected with said slot through a plurality of elementary ducts (grooves 64) (col 7, lns 29-38), **6)** a basin (basin formed between the

edge of barrier layer 62 and the edge of substrate 60, due to the formation of slot etched in substrate) adjacent to said slot and that each of said chambers is fluidly connected with said basin through said plurality of elementary ducts (col 10, Ins 18-36), **7)** said elementary ducts (grooves 64) has a substantially rectangular section (col 7, Ins 66-67), **8)** wherein said substantially rectangular section has a first depth (H64) and a width (W64), and that said width is between 3 and 15 μm (col 7, Ins 63-64), **9)** wherein said chambers comprises a tank (plenum 78) fluidly connected with said plurality of elementary ducts (col 7, Ins 6-9), **10)** wherein said chamber has a second depth (depth is from top of barrier layer to the bottom of barrier layer) independent of said first depth (H64) (Figs. 7 and 10), **11)** wherein said first depth (h64) is between 10 and 100 μm (col 7, In 65), **12)** wherein said basin has a third depth different from said first depth (Fig. 7), **13)** wherein said first depth is between 5 and 20 μm (col 7, In 64), **14)** wherein said die is substituted by a die without a slot (edge feed design of Fig. 6 and 7), and a plurality of chambers (chamber includes 74, 80 and 78) is located along at least one side of said die and that each of said chambers is fluidly connected with said reservoir through a plurality of elementary ducts (grooves 64) (col 7, Ins 6-10), **15)** wherein a plurality of nozzles (orifice 84) is contained in a flat cable (tape 48) having an upper face and a lower face and that a plurality of elementary ducts (grooves 64) is produced on said lower face of said flat cable (col 7, Ins 24-26), and **16)** wherein a plurality of chambers is produced on said lower face of said flat cable (Fig. 7).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Courian et al. (US 6,286,941 B1).

Courian et al. discloses the claimed invention, with the exception of wherein said third depth is between 20 and 100 um specifically. However, Courian et al. at least teaches a basin (formed between the edge of barrier layer 62 and the edge of substrate 60, due to the formation of slot etched in substrate), having a non-specified depth. No patentable weight has been given to the claimed depth of between 20 and 100 um. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a basin with a depth of 20-100 um, since applicant has not disclosed that having the specified depth solves any stated problem or is for any particular purpose and it appears that the printhead would perform equally well with the basin at any depth.

Allowable Subject Matter

6. Claims 19-24 are allowed.

7. The following is a statement of reasons for the indication of allowable subject matter:

The combination of each of said ejectors presenting a time constant (t), characterized in that each of said chambers is fluidly connected with said slot through a plurality of elementary ducts each having a width (g) determined by means of the formula

$$G = 12 \cdot \eta \cdot t$$

Where (η) is the viscosity of the ink and (t) is the time constant assigned to each of said ejectors, and the number N of said elementary ducts is determined by means of the formula

$$N = \frac{(R')^2 \cdot C_m}{4L'}$$

where R' and L' represent respectively the hydraulic resistance and the hydraulic inertance of a single elementary duct, and C_m represents the hydraulic compliance of said meniscus whereby said meniscus presents a critical damping with whatever value is assigned to (t), recited in claim 19. This invention solves the problem of rendering the emission frequency of the droplets of ink maximal by making the time constant (t) of the ejector as short as possible, while at the same time satisfying the condition of critical damping of the meniscus, and to filter the ink of any impurities that may be present.

Response to Arguments

9. Applicant's arguments filed 2/7/2005 have been fully considered but they are not persuasive. The Applicant argues that Courian merely describes a chamber with discontinuous walls. The Examiner position is that MPEP 2111.01 holds that the claims must be interpreted as broadly as their terms reasonably allow. During examination the

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USPTO must give claims their broadest reasonable interpretation, meaning that the word of the claim must be given their "plain meaning", unless the Applicant has provided a clear definition in the specification. MPEP 2111.01 further hold that the phrase "plain meaning" refers to the ordinary and customary meaning attributed to them by those of ordinary skill in the art. The Riverside Webster's II New College Dictionary defines the term "chamber" to mean "an enclosed space or compartment". Looking at Fig. 8 of Courian the chamber is defined by 74, 80 and 78, which depicts an enclosed space.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juanita D. Stephens whose telephone number is (571) 272-2153. The examiner can normally be reached on Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JS

May 16, 2005

Juanita D. Stephens
Primary Examiner
Art Unit 2853